



## General Diet

## High-Fiber Diet

### General Description

The average consumption of dietary fiber in the United States has been estimated at 15 grams per day<sup>2</sup>. The high-fiber diet provides 20 to 35 grams of soluble and insoluble fiber. This is the daily level of fiber recommended by the National Cancer Institute, the American Dietetic Association and several other health authorities.

### Indications for Use

#### Constipation

- Both soluble and insoluble fibers can be used to relieve constipation.
- To be effective in relieving constipation, a high fiber diet must be coupled with an adequate fluid intake (at least 2 quarts of non-caffeinated liquids each day for most adults).
- Fiber intake should be increased in a gradual manner in order to minimize gastrointestinal discomfort (bloating, abdominal cramping, gas).
- When straining during defecation is especially undersirable (e.g., after recent myocardial infarction or recent abdominal surgery), avoidance/treatment of constipation is particularly important.

#### Diverticulosis

- Several studies demonstrate a benefit of fiber-rich diets in preventing and treating uncomplicated diverticular disease. During acute diverticulitis (inflammation of the diverticular), a low-fiber diet is indicated.

#### Weight Loss

- High-fiber diets may improve satiety in those following low-calorie, low-fat diets for weight loss.

*See “Test Diet-Diarrhea management” for specifics on soluble fiber. Soluble fiber exerts the following metabolic effects: binding bile acids, reducing serum triglyceride and cholesterol levels, reducing fluid content of diarrhea, delaying glucose absorption, and increasing sensitivity to insulin.*

**The High-Fiber Diet is not appropriate** for individuals with ileus or intestinal blockage. A high-fiber diet could increase the risk of complete obstruction and eventual peritonitis.

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### Nutritional Adequacy

In comparison to the Recommended Dietary Allowances, the high fiber diet is nutritionally adequate with the same exceptions as for the regular diet. Some studies have shown that excess fiber can bind and interfere with the absorption of: Calcium, copper, iron, magnesium, selenium and zinc. In the general population, a high-fiber diet does not impair mineral/trace element status<sup>4</sup>.

### Medical Nutritional Therapy

Adequate fiber should be taken to ensure normal laxation, allowing a wide range of bowel habits to be accepted as normal. For those patients with a usually low fiber intake, only a moderate increase in fiber intake may be needed. This same recommendation is appropriate for children. An excessively high-fiber diet in children may decrease caloric intake and affect absorption of essential minerals<sup>4</sup>.

In general, the evidence for a protective role of dietary fiber in coronary heart disease, colon and rectal cancer, stomach cancer, female gynecological cancers, diabetes, diverticulosis, hypertension and gallstones is inconclusive. Even where the evidence is strongest, it has not been possible to adequately separate the effects of fiber from other components of the diet (total calories, fats, vitamins, minerals and non-nutritive constituents of fruits and vegetables), as well as non-dietary factors (e.g., socioeconomic status)<sup>4</sup>.

Epidemiologic studies are consistent in showing that a diet with large amounts of fiber-containing foods, including vegetables, and relatively low levels of meat and fat products is beneficial with respect to cancer of the colon and possibly atherogenesis. It is not known whether this is due to the high fiber content of such diets or to the presence or absence of some other dietary factor. Therefore, although it is reasonable to recommend a diet containing high levels of fiber-rich foods, there is little evidence to support direct supplementation with fiber<sup>4</sup>.

### Guidelines

A diet assessment by the dietitian is essential in order to determine the patient's usual and current fiber and fluid intake. Having done this, the dietitian can provide specific guidelines for the total fiber amount to be provided, and whether supplemental products or fiber-fortified foods or juices will be needed.

For an uncomplicated situation, where the patient is able to tolerate a variety of high-fiber foods, the standard diet modification would involve providing at least:

- 2 servings whole grain starch product at each meal
- 2-3 servings fruit and/or vegetables at each meal
- Wheat bran, coffee, prunes, legumes (cooked beans, peanut butter) as desired by patient

### References

1. The Manual of Clinical Dietetics. American Dietetics Association, 4th edition, 1992.
2. Continuing Survey of Food Intake by Individuals. U.S. Department of Agriculture. 1994.
3. Shils M., Olson J., Shike M., eds. Modern Nutrition in Health and Disease. Volumes 1-2, 1994.
4. Diet and health. U.S. Department of Agriculture, 1989.

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### Dietary Fiber Content of Foods in Commonly Served Portions

Food Group	<1g	1-1.9g	2-2.9g	3-3.9g	4-4.9g	5-5.9g	>6g
Breads (1 slice)	Bagel (small), White (1 slice), French, English Muffin (1/2)	Whole Wheat	Wheat-bran muffin				
Cereals (1 oz.)	Rice Krispies, Special K, Corn Flakes	Oatmeal, Cheerios	Wheaties, Shredded Wheat, Miller's Bran (1 tbsp.)		Bran Flakes, Raisin Bran		All Bran, 100% Bran, Juice Plus (12 oz.)
Pasta (1/2 cup cooked)	Macaroni, Spaghetti	Whole-wheat noodles					
Rice (1/2 cup cooked)	White	Brown					
Popcorn (3 cups popped)				Popcorn (3 cups)			
Legumes (1/2 cup cooked)	N/A	N/A	Peanut Butter (2 tbsp.)	Lentils	Lima Beans, Dried Peas		Kidney Beans, Baked Beans, Navy Beans
Vegetables (1/2 cup unless indicated)	Cucumbers, Lettuce (1 cup), Green Pepper	Asparagus, Green Beans, Cabbage, Cauliflower, Potato (no skin), Celery	Broccoli, Brussell Sprouts, Carrots, Corn, Potato w/skin, Spinach				
Fruit (1 medium unless otherwise stated)	Grapes (20), Watermelon (1 cup)	Apricots (3), Grapefruit (1/2), Peach w/skin, Pineapple (1/2 cup)	Apple (no skin), Banana, Orange	Apple w/skin, Pear w/skin, Raspberries			

#### SPECIAL PROVISIONS FOR PATIENTS WITH DIFFICULTY CHEWING OR POOR INTAKE:

Offer prune juice, juice fortified with fiber, dried banana flakes, and smooth peanut butter (used in a milkshake if needed).

## High-Fiber Diet

### Suggested Meal Plan

<b>Breakfast</b>	<b>Lunch</b>	<b>Dinner</b>
Fresh Fruit	Soup (Pea or Bean)	Soup (Pea or Bean)
Whole Grain Cereal	Meat or Substitute	Meat or Substitute
Whole Grain Bread or Muffin	Baked Potato or Substitute	Baked Potato or Substitute
Margarine	Vegetable	Vegetable
Milk	Salad (Raw Vegetables)	Salad (Raw Vegetables)
Beverage	Fresh Fruit	Fresh Fruit
	Whole Grain Bread	Whole Grain Bread
	Margarine	Margarine
	Milk	Milk
	Beverage	Beverage